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WHAT IS CLAIMED IS:

1.   A signal processing system, comprising:
5   an encoder capable of selectively encoding information having one format from a signal having a plurality of different formats, one of the different formats not selected by the encoder being modulated; and
         a driver capable of selectively outputting onto a packet based network the encoded information and demodulated information from said one of the different formats.

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2.   The signal processing system of claim 1 wherein the selected format comprises pulse code modulation.

3.   The signal processing system of claim 1 wherein said one of the formats not selected by the encoder comprises information modulated by a voiceband carrier.

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4.   The signal processing system of claim 1 wherein the encoded information comprises voice signals.

5.   The signal processing system of claim 4 further comprising a voice activity detector which suppresses the voice signals without speech.

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6.   The signal processing system of claim 5 further comprising a comfort noise estimator which generates comfort noise parameters when the voice activity detector suppresses the voice signals, said comfort noise parameters being selectively outputted by the driver.

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7.   The signal processing system of claim 1 further comprising a decoder capable of decoding packets of information from the packet based network.

8.   The signal processing system of claim 7 wherein the information packets include voice signals, the signal processing system further comprising a voice activity detector which detects the voice signals without speech, and a comfort noise generator which inserts comfort noise in place of the voice signals without speech.

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9.   The signal processing system of claim 8 further comprising a comfort noise estimator which generates comfort noise parameters from at least a portion of the voice signals without speech, the comfort noise generator being responsive to the comfort noise parameters.

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10.   The signal processing system of claim 7 wherein the information packets include voice signals, the signal processing system further comprising a voice activity detector which detects lost voice signals, and a lost packet recovery engine which processes the voice signals
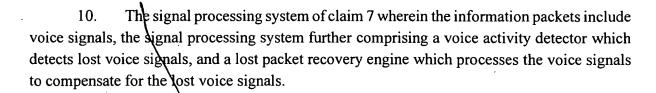
5   to compensate for the lost voice signals.

11.   The signal processing system of claim 1 further comprising a jitter buffer capable of receiving packets of information of varying delay from the packet based network and compensating for the delay variation of the information packets.

10   12.   The signal processing system of claim 11 wherein the jitter buffer outputs an isochronous stream of the received information.

13.   The signal processing system of claim 11 wherein the jitter buffer comprises a queue which buffers the received information for a holding time, and a voice synchronizer which adaptively adjusts the holding time of the queue.

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14.   A method of processing signals, comprising:
        selectively encoding information having one format from a signal having a plurality of formats; and
        selectively outputting onto a packet based network the encoded information and

20   demodulated information from one of the formats not selected.

15.   The signal processing system of claim 14 wherein the selected format comprises pulse code modulation.

16.   The signal processing system of claim 14 wherein said one of the formats not

25   selected by the encoder comprises information modulated by a voiceband carrier.

17.   The method of claim 14 wherein the extracted information includes voice signals.

18.   The method of claim 17 further comprising suppressing the voice signals when

30   the voice signals do not comprise speech.

19.   The method of claim 18 wherein the suppression of the voice signals comprises generating comfort noise parameters in place thereof.

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20.   The method of claim 14 further comprising receiving information packets of varying delay from the packet based network, and compensating for the delay variation of the information packets.

21.   The method of claim 20 wherein the information packet compensation comprises generating an isochronous stream of the information.

22.   The method of claim 21 wherein the isochronous stream generation comprises adaptively buffering the information.

23.   The method of claim 14 further comprising receiving packets of voice signals from the packet based network, identifying the received voice signals without speech, and inserting comfort noise in place of the identified voice signals without speech.

24.   The method of claim 23 wherein the comfort noise insertion comprises estimating comfort noise in response to at least a portion of the received voice signals without speech.

25.   The method of claim 14 further comprising receiving packets of voice signals from the packet based network, detecting lost voice signals, decoding the received voice signals, and processing the decoded voice signals to compensate for the lost voice signals.

26.   A signal transmission system, comprising:
        a first telephony device which outputs information having a first format;
        a second telephony device which outputs information having a second format different from the first format, the second format being a modulated format;
        a packet based network; and   —
        a signal processing system coupling the first and the second telephony devices to the packet based network, the signal processing system having an encoder which encodes the information having the first format, and a driver which selectively outputs onto the packet based network the encoded information and a demodulated form of the information having the second format.

27   The signal processing system of claim 26 wherein the first format comprises pulse code modulation.

28   The signal processing system of claim 26 wherein the second format comprises information modulated by a voiceband carrier.

29.   The signal transmission system of claim 26 further comprising a switched circuit network coupling the first and the second telephony devices to the signal processing system.

30.   The signal transmission system of claim 29 wherein the switched circuit network comprises a public switching telephone network.

31.   The signal transmission system of claim 26 wherein the packet based network comprises internet protocol.

32.   The signal transmission system of claim 26 wherein the packet based network comprises frame relay.

33.   The signal transmission system of claim 26 wherein the packet based network comprises aynchronous transfer mode.

34.   The signal transmission system of claim 26 wherein the packet based network comprises a time division multiplexing network.

35.   The signal transmission system of claim 26 wherein the first telephony device comprises a telephone.

36.   The signal transmission system of claim 26 wherein the second telephony device comprises a fax.

37.   The signal transmission system of claim 26 wherein the second telephony device comprises a modem.

38.   The signal transmission system of claim 26 wherein the encoded information comprises voice signals.

39.   The signal transmission system of claim 38 wherein the signal processing system further comprises a voice activity detector which suppresses the voice signals without speech.

40.   The signal transmission system of claim 39 wherein the signal processing system further comprises a comfort noise estimator which generates comfort noise parameters when the

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voice activity detector suppresses the voice signals, said comfort noise parameters being selectively outputted by the driver.

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41. The signal transmission system of claim 26 wherein the signal processing system further comprising a decoder capable of decoding packets of information from the packet based network.

42. The signal transmission system of claim 41 wherein the information packets include voice signals, the signal processing system further comprising a voice activity detector

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which detects the voice signals without speech, and a comfort noise generator which inserts comfort noise in place of the voice signals without speech.

43. The signal transmission system of claim 42 wherein the signal processing system further comprises a comfort noise estimator which generates comfort noise parameters from at least a portion of the voice signals without speech, the comfort noise generator being responsive

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to the comfort noise parameters.

44. The signal transmission system of claim 41 wherein the information packets include voice signals, the signal processing system further comprising a voice activity detector which detects lost voice signals, and a lost packet recovery engine which processes the voice

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signals to compensate for the lost voice signals.

45. The signal transmission system of claim 26 wherein the signal processing system further comprises a jitter buffer capable of receiving packets of information of varying delay from the packet based network and compensating for the delay variation of the information packets.

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46. The signal transmission system of claim 45 wherein the jitter buffer outputs an isochronous stream of the received information.

47. The signal transmission system of claim 45 wherein the jitter buffer comprises a queue which buffers the received information for a holding time, and a voice synchronizer

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which adaptively adjusts the holding time of the queue.

48. A method of transmitting signals, comprising:
transmitting information having one format from a first telephony;

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discriminating between the information having the one format and information having a different format, said different format being a modulated format; and

selectively outputting onto a packet based network the encoded information and demodulated information having the different format.

49.   The method of claim 48 wherein the one format comprises pulse code modulation.

50.   The method of claim 48 wherein the different format comprises information modulated by a voiceband carrier.

51.   The method of claim 48 wherein the information having the first format is transmitted on a a switched circuit network.

52.   The method of claim 51 wherein the switched circuit network comprises a public switching telephone network.

53.   The method of claim 48 wherein the packet based network comprises internet protocol.

54.   The method of claim 48 wherein the packet based network comprises frame relay.

55.   The method of claim 48 wherein the packet based network comprises asynchronous transfer mode.

56.   The method of claim 48 wherein the packet based network comprises a time division multiplexing network.

57.   The method of claim 48 wherein the first telephony device comprises a telephone.

58.   The method of claim 48 wherein the information having the different format is transmitted from a fax.

59.   The method of claim 48 wherein the information having the different format is transmitted from a modem.

60.   The method of claim 48 wherein the one format comprises pulse code modulation.

61.   The method of claim 48 wherein the different format comprises information modulated by a voiceband carrier.

62.   The method of claim 48 wherein the discriminated information includes voice signals.

63.   The method of claim 60 further comprising suppressing the voice signals when the voice signals do not comprise speech.

64.   The method of claim 61 wherein the suppression of the voice signals comprises generating comfort noise parameters in place thereof.

65.   The method of claim 48 further comprising receiving information packets of varying delay from the packet based network, and compensating for the delay variation of the information packets.

66.   The method of claim 63 wherein the information packet compensation comprises generating an isochronous stream of the information.

67.   The method of claim 64 wherein the isochronous stream generation comprises adaptively buffering the information.

68.   The method of claim 48 further comprising receiving packets of voice signals from the packet based network, identifying the received voice signals without speech, and inserting comfort noise in place of the identified voice signals without speech.

69.   The method of claim 66 wherein the comfort noise insertion comprises estimating comfort noise in response to at least a portion of the received voice signals without speech.

70.   The method of claim 48 further comprising receiving packets of voice signals from the packet based network, detecting lost voice signals, decoding the received voice signals, and processing the decoded voice signals to compensate for the lost voice signals.